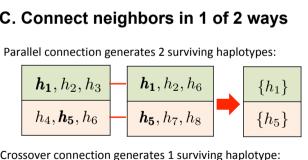
B. Find optimal haplotype pairs in each window A. Examine small window Reference haplotypes Unique reference Find h_1, h_4 using Full reference haplotypes least squares haplotypes aligned h_2 Find unique $h_1 + h_4 \approx x_1$ with genotypes h_3 haplotypes Extract matching haplotypes $||x_1' - h_1 - h_4||^2 = 2$ $||x_1' - h_1 - h_7||^2 = 2$ strand 1: $\{h_1, h_2, h_3\}$ h_8 $||x_1' - h_4 - h_7||^2 = 3$ Initialize Full genotype for sample 1 strand 2: $\{h_4, h_5, h_6\}$ Target genotype missing **Candidate haplotypes**

Parallel connection generates 2 surviving haplotypes:

 h_1, h_2, h_3

 h_4, h_5, h_6

Window 1



 h_1, h_2, h_6

 h_5, h_7, h_8

Window 2

{}

 $\{h_6\}$

Survivors

C. Connect neighbors in 1 of 2 ways

D. Stitch window-by-window from left to right Unphased haplotypes

Window 1

Window 2

Window 4

Window 3